

## TITLE OF THE INVENTION

MONITOR

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a monitor according to the present invention;

FIG. 2 is a partially exploded perspective view of the monitor of FIG. 1;

FIGS. 3A through 3D are sectional views illustrating that a locking hook is locked to a locking part of FIG. 2;

FIG. 4 is a sectional view illustrating the locking hook locked to the locking part of FIG. 2 in the state that the monitor main body is separated from the monitor; and

FIG. 5 is a sectional view illustrating the locking hook locked to the locking part of FIG. 2 in the state that the monitor main body leans to one side.

## &lt;Reference numerals of main elements&gt;

1: monitor	3: monitor main body
10: base member	20: base bracket
21: button through hole	23: projection through hole
25: stand combining hole	30: stand member
31: bracket combining hole	40: moving member
41: moving block combining hole	50: locking block
51: locking hook	53: push button
55: combining projection	57: coil spring

60: moving block  
65: moving member combining hole  
67: slant part                      70: flat spring  
80: installation

#### BACKGROUND OF THE INVENTION

##### Field of the Invention

The present invention relates to a monitor, and more particularly, to a monitor comprising a monitor main body displaying a picture, and a base member supporting the monitor main body.

Recently, according as a computer system is widely used, demand for a monitor is rapidly increased. With this, there have been proposed various monitors having functions to suit user's taste and to give a user convenience.

For example, there is a monitor disclosed in Korean utility model No. 20-0279427, which comprises a base, a stand standing on the base, a plate combined to a rear bracket of the monitor and extended downward, a guide plate combined to the stand and provided with a pair of rail grooves, a slider provided with a projection to be engaged with the rail groove and sliding up and down along the guide plate, a pusher combined to a lower part of the slider and formed with a semicircular receipt groove in a lower end thereof, and a rolled spring having a first end coupled to the stand and a second end inserted in the

receipt groove of the pusher with being in a rolled state, and having elasticity acting in a direction opposite to weight of a monitor main body.

With this configuration, the conventional monitor operates as follows. When a user wants to adjust the height of the monitor main body to a lower position, the user presses the monitor main body downward, so that the monitor main body moves downward overcoming the elasticity of the rolled spring. Then, when the user stops pressing the monitor main body at a proper position, the monitor main body stops moving with a balance of the weight thereof and the elasticity of the rolled spring.

As described above, in the conventional monitor, the monitor main body can be stopped at a proper position because the weight of the monitor main body and the elasticity of the rolled spring are canceled each other. Therefore, in the case of packing the conventional monitor, if the monitor is separated into the monitor main body and the stand, the slider connected to the rolled spring slides upward according as the weight of the monitor main body counterbalancing the elasticity of the rolled spring disappears.

Substantially, the whole volume of the monitor is minimized when the slider is positioned at the lowest position from the base even though the monitor main body is

separated from the monitor. However, in the conventional monitor, the slider slides toward the highest position when the monitor main body is separated from the monitor so as to pack the monitor, so that the packing volume of the monitor is increased.

Further, in the case of carrying the conventional monitor, if the monitor leans to one side, a vector magnitude of the elasticity of the rolled spring is larger than the vector magnitude of the weight of the monitor main body in the sliding direction of the slider, so that the elasticity of the rolled spring overcomes the weight of the monitor main body, thereby moving the monitor main body upward. Therefore, in the case that the monitor leans to one side, because the monitor main body suddenly moves upward, it is inconvenient to handle the monitor.

#### ASPECT OF THE INVENTION

Accordingly, it is an aspect of the present invention to provide a monitor which is decreased in packing volume and is convenient to carry, handle, etc.

#### CONFIGURATION OF THE INVENTION

The foregoing and/or other aspects of the present invention can be achieved by a monitor comprising a monitor main body displaying a picture, a base member supporting

the monitor main body, further comprising: a stand member standing on the base member; a moving member combined to the stand member so as to move up and down and supporting the monitor main body with a force counterbalancing the weight of the monitor main body; a locking part provided in the moving member; a locking hook provided at least one of the stand member and the base member so as to be locked to and released from the locking part of the moving member; and an elastic member provided on the locking part to release the locking hook from the locking part when the moving member supports monitor main body with the force counterbalancing the weight of the monitor main body.

According to the embodiment of the present invention, the elastic member includes a flat spring, and the flat spring is provided inside the locking part.

According to the embodiment of the present invention, the monitor further comprises a moving block combined to the moving member, and a locking block combined to at least one of the stand member and the base member, wherein the locking part is provided in the moving block, and the locking hook is provided in the locking block.

According to the embodiment of the present invention, the locking hook protrudes from the locking block and is downwardly bent, and the locking part includes a locking groove corresponding to the locking hook.

According to the embodiment of the present invention, the monitor further comprises a base bracket provided between the stand member and the base member, and combined with the stand member and the base member, and the locking block is combined to the base bracket.

According to the embodiment of the present invention, the locking block includes: a push button protruding through a first side of the base bracket; and a combining projection inserted and combined in a second side of the base bracket.

According to the embodiment of the present invention, the monitor further comprises a coil spring provided between the locking block and the second side of the base bracket so as to elastically push the locking block toward the first side of the base bracket.

According to the embodiment of the present invention, the coil spring is combined to the combining projection.

The embodiments are described below in order to explain the present invention by referring to the figures.

As shown in FIGS. 1 and 2, a monitor 1 according to the present invention comprises a monitor main body 3 displaying a picture, a base member 10 laid on an installation plane 80 such as a table so as to support the monitor main body 3, a stand member 30 standing on the base member 10, a moving member 40 combined to the stand member

30 movably up and down and supporting the monitor main body 3 with a force counterbalancing the weight of the monitor main body 3, a moving block 60 combined to the moving member 40 and having a locking part 61, a base bracket 20 provided between the stand member 30 and the base member 10, and a locking block 50 combined to the base bracket 20.

The stand member 30 forms a pair, and each stand member 30 is inwardly recessed and accommodates the moving member 40 therein so as to allow the moving member 40 to be movable up and down, thereby guiding the moving member 40 to move up and down. Further, a lower part of each stand member 30 is formed with bracket combining holes 31 spaced from each other, through which screws are passed and fastened to the inside of the base bracket 20.

The moving member 40 forms a pair, and each moving member 40 is inserted in the stand member 30 movably up and down. Further, an upper part of the stand member 30 is combined to the monitor main body 3 and supports the monitor main body 3 with the force counterbalancing the weight of the monitor main body 3. At this time, the force counterbalancing the weight of the monitor main body 3 is caused by a spring member (not shown) provided between the stand member 30 and the moving member 40.

The spring member has an upper end coupled to an upper part of the stand member 30 and a lower end coupled to a

lower part of the moving member 40. The spring member is used for moving the monitor main body 3 upward with the force counterbalancing the weight of the monitor main body 3, and includes a spiral spring, an extension spring, a cylinder unit, etc.

With this, in order to adjust the height of the monitor main body 3, when a user presses the monitor main body 3 upward or downward and stops pressing the monitor main body 3 at a proper position, the monitor main body 3 stops moving with a balance of the weight thereof and the elasticity of the spring member.

The base bracket 20 is provided between the stand member 30 and the base member 10, and is employed for combining the stand member 30 with the base member 10, thereby firmly supporting the stand member 30 on the base member 10. Inside the base bracket 20 are formed a predetermined space to accommodate the locking block 50 therein, and stand combining holes 25 to be employed for combining the pair of stand members 30 with the base bracket 20. Further, on a first side of the base bracket 20 is formed a button through hole 21 through which a push button 53 of the locking block 50 (to be described later) passes, and on a second side of the base bracket 20 is formed a projection through hole 23 through which a combining projection 55 of the locking block 50 (to be

described later) passes.

The moving block 60 includes (a 삭제요) moving member combining holes 65 combined by a screw to a moving block combining hole 41 provided in a lower part of the moving member 40, the locking part 61 caved in so as to accommodate a locking hook 51 of the locking block 50 therein, and a slant part 67 formed in a lower part of the locking part 61 and sloping at a predetermined angle.

The locking part 61 is formed with a locking groove 63 to which the locking hook 51 of the locking block 50 is hooked. Inside the locking groove 63 is provided an elastic member to release the locking hook 51 from the locking groove 63 of the locking part 61 when the moving member 40 supports monitor main body 3 with the force counterbalancing the weight of the monitor main body 3 because of the spring member.

The slant part 67 is used for contacting the upper part of the locking hook 51 and pushing the locking hook 51 in an opposite direction of a protruding direction of the locking hook 51 when the moving member 40 moves downward.

The elastic member is a flat spring 70 inserted inside the locking groove 63 and partially fastened to the moving block 60.

The flat spring 70 has elasticity being weaker than both the elasticity of the spring member and the weight of

the monitor main body 3 but being strong enough to release the locking hook 51 from the locking groove 63 of the locking part 61 when monitor main body 3 is supported by the moving member 40 with the force counterbalancing the weight of the monitor main body 3 because of the spring member.

With this, when the monitor 1 is seated on the installation plane 80 such as a table, the flat spring 70 prevents the locking hook 51 from being hooked to the locking groove 63.

The locking block 50 includes the locking hook 51 to be locked to the locking part 61 of the moving block 60, the push button 53 protruding from the first side of the base bracket 20 through the button through hole 21, and the combining projection 55 combined to the second side of the base bracket 20, being inserted in the projection through hole 23.

The locking hook 51 protrudes from the locking block 50 so as to be hooked to the locking groove 63 of the locking part 61, and its end is downwardly bent. Herein, the locking hook 51 forms a pair, but may be a single or may be three or more.

The push button 53 protrudes outwardly from the base bracket 20 and slides through the button through hole 21, thereby allowing a user to push the push button 53.

The combining projection 55 is slidably combined to the base bracket 20, being inserted in the projection through hole 23. On the combining projection 55 is put a coil spring 57 between the projection through hole 23 of the base bracket 20 and the locking block 50, thereby elastically returning the locking block 50 toward the first side of the base bracket 20. Herein, the coil spring 57 is put on the combining projection 55, but may be provided anywhere so as to return the locking block 50 toward the first side of the base bracket 20.

With this, when a user pushes the push button 53 with a force strong enough to overcome elasticity of the coil spring 57, the locking block 50 moves in a pushing direction. Oppositely, when a user removes the force pushing the push button 53, the locking block 50 is returned to an original position by the elasticity of the coil spring 57.

With this configuration, the locking hook 51 of the monitor 1 according to the present invention is locked to the locking part 61 as follows.

As shown in FIGS. 3A through 3D, in the case of the monitor 1 seated on the installation plane 80 such as a table, when the moving block 60 moves downward according as a user presses the monitor main body 3 downward (refer to FIG. 3A), the slant part 67 of the moving block 60 contacts

and pushes the locking block 50 toward the second side of the base bracket 20, overcoming the elasticity of the coil spring 57 (refer to FIG. 3B). Then, when the locking hook 51 is placed to the locking part 61 (refer to FIG. 3C), the locking hook 51 is inserted in the locking part 61 by the elasticity of the coil spring 57. At this time, although the locking hook 51 of the locking block 50 is inserted in the locking part 61 of the moving block 60, the locking hook 51 is not hooked to the locking groove 63 because of the elasticity of the flat spring 70 provided inside the locking hook 63 (refer to FIG. 3D).

As described above, the reason why the locking hook 51 cannot be hooked to the locking groove 63 by the elasticity of the flat spring 70 is that the flat spring 70 has elasticity being weaker than both the elasticity of the spring member and the weight of the monitor main body 3 but being strong enough to release the locking hook 51 from the locking groove 63 of the locking part 61 when monitor main body 3 is supported by the moving member 40 with the force counterbalancing the weight of the monitor main body 3 because of the spring member.

Thus, in the case of the monitor 1 seated on the installation plane 80 such as a table, the locking hook 51 is inserted in the locking part 61 of the moving block 60 but is not hooked to the locking groove 63 of the locking

part 61, so that a user can easily move the monitor main body 3 upward after removing the locking hook 51 from the locking part 61 by pushing the push button 53.

On the other hand, as shown in FIG. 4, in the case that the monitor 1 leans to one side by reasons of carrying the monitor 1, etc., a vector magnitude of the elasticity of the spring member is larger than the vector magnitude of the weight of the monitor main body 3 in the moving direction of the moving block 60, so that the elasticity of the spring member overcomes the weight of the monitor main body 3, thereby moving the monitor main body 3 upward. At this time, the locking hook 51 is hooked to the locking groove 63 by the elasticity of the spring member, pressing the flat spring 70 provided in the locking groove 63. Further, although a user pushes the push button 53 by mistake, the push button 53 does not slide because the locking hook 51 is hooked to the locking groove 63, so that the monitor main body 3 is prevented from suddenly moving upward and it is convenient to handle the monitor 1.

Further, as shown in FIG. 5, in the case that the monitor main body 3 is separated from the monitor 1 by reasons of packing the monitor 1, etc., the locking hook 51 is hooked to the locking groove 63 by the elasticity of the spring member, pressing the flat spring 70 provided in the locking groove 63 of the moving block 60 according as the

weight of the monitor main body 3 counterbalancing the elasticity of the spring member disappears. Therefore, although a user pushes the push button 53 by mistake, the push button 53 does not slide because the locking hook 51 is hooked to the locking groove 63, so that the monitor 1 can be safely packed with the minimum volume, thereby decreasing the packing volume.

As described above, the monitor according to the present invention comprises the stand member standing on the base member, the moving member combined to the stand member movably up and down and supporting the monitor main body with the force counterbalancing the weight of the monitor main body, the locking part combined to the moving member, the locking hook provided at least one of the stand member and the base member so as to be locked to and released from the locking part of the moving member, and the elastic member to release the locking hook from the locking part when the moving member supports monitor main body with the force counterbalancing the weight of the monitor main body. With this configuration, thereby decreasing the packing volume and being convenient to carry, handle, etc.

#### EFFECT OF THE PRESENT INVENTION

As described above, the present invention provides a

monitor which is decreased in packing volume and is convenient to carry, handle, etc.